

Applicant: Wyatt Paul et al.  
Serial No: 09/377,502  
Filed: August 20, 1999  
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In the Claims

Please cancel claims 5, 6, 12, 13, 19, 20, 26, 27, 41 and 44 without disclaimer or prejudice to applicants' rights to pursue the subject matter of this claim in this or a subsequent application.

Please amend claims 1, 7, 11, 15, 21, 25, 30, 40, 42, 43 and 45 under the provisions of 37 C.F.R. §1.121(c). Please also add new claims 50 and 51 set forth below. The amended claims are presented below and the amendments to the claims are indicated in the marked-up set of claims in Attachment A hereto.

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1. (3X Amended) A pair of parent plants for producing seeds comprising:

(i) a first parent plant containing one or more gene sequences encoding a polypeptide A, and

F 1  
(ii) a second parent plant containing one or more gene sequences encoding a polypeptide B;

wherein each of A and B, when expressed in a plant that expresses only one of A or B, is not an active enzyme, is not a regulatory protein and is not a protein which affects the functionality and/or viability and/or the structural integrity of a cell, but when expressed in a plant that expresses both A and B, A and B form an active enzyme, or a regulatory protein, or a protein which affects the structural integrity of a plant cell,

wherein the one or more gene sequences encoding polypeptide A or B comprises a tapetum-specific promoter, an embryo-specific promoter, or a seed specific promoter; and

F1  
COU4. wherein one or both of the polypeptides A or B is fused to  
a carrier protein or a protein targeting signal.

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F2 7. (Twice Amended) The pair of plants as claimed in claim 1  
wherein the polypeptides A and B are two polypeptide subunits of  
an enzyme having RNase activity.

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F3 11. (Amended) The pair of plants as claimed in claim 1, wherein  
the one or more gene sequences encoding polypeptide A or B  
comprises a tapetum-specific promoter.

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F4 15. (3X Amended) A method for producing a plant having a desired  
phenotype by virtue of an active enzyme, a regulatory protein or  
a protein which affects the structural integrity of a cell, the  
method comprising crossing a first plant with a second plant  
wherein the first plant contains one or more gene sequences  
encoding a polypeptide A but which plant does not have the  
desired phenotype and wherein the second plant contains one or  
more gene sequences encoding a polypeptide B but which plant does  
not have the desired phenotype, wherein each of A and B, when  
expressed in a plant that expresses only one of A or B, is not  
an active enzyme, is not a regulatory protein and is not a  
protein which affects the functionality and/or viability and/or  
the structural integrity of a cell, but when expressed in a plant  
that expresses both A and B, A and B form an active enzyme, a  
regulatory protein, or a protein which affects the structural  
integrity of a plant cell,

wherein the one or more gene sequences encoding polypeptide  
A or B comprises a tapetum-specific promoter, an embryo-specific  
promoter, or a seed specific promoter; and

wherein one or both of the polypeptides A and B is fused to  
a carrier protein or protein targeting signal.

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F5  
21. (Twice Amended) The method as claimed in claim 15 wherein the polypeptides A and B are two polypeptide subunits of an enzyme having RNase activity.

F6  
25. (Amended) The method as claimed in claim 15, wherein the one or more gene sequences encoding polypeptide A or B comprises a tapetum-specific promoter.

F7  
30. (3X Amended) A seed or plant, having a phenotype by virtue of an active enzyme, a regulatory protein or a protein which affects the structural integrity of a cell, which is caused by the combined action of two or more transgenes, comprising a first transgene encoding a polypeptide A and a second transgene encoding a polypeptide B wherein each of A and B, when expressed in a plant that expresses only one of A or B, is not an active enzyme, is not a regulatory protein and is not a protein which affects the functionality and/or viability and/or the structural integrity of a cell, but when expressed in a plant that expresses both A and B, A and B form an active enzyme, a regulatory protein, or a protein which affects the structural integrity of a plant cell,

wherein the transgene encoding polypeptide A or B comprises a tapetum-specific promoter, an embryo-specific promoter, or a seed specific promoter; and

wherein one or both of the polypeptides A and B is fused to a carrier protein or protein targeting signal.

F8  
40. (Amended) A pair of parent plants for producing seeds comprising:

- (i) a first parent plant containing a gene sequence encoding a polypeptide A\* comprising a methionine

codon followed by amino acids 1 to 35 or 1 to 36 of mature Barnase; and

- (ii) a second parent plant containing a gene sequence encoding a polypeptide B\* comprising a methionine codon followed by amino acids 37 to 110 of mature Barnase,

F8  
COD4. wherein each of A\* and B\*, when expressed in a plant that expresses only one of A\* or B\*, is not an active RNase enzyme, but when expressed in a plant that expresses both A\* and B\*, A\* and B\* form an active RNase enzyme,

wherein the one or both gene sequences encoding polypeptide A\* or B\* comprises a tapetum-specific promoter, an embryo-specific promoter, or a seed specific promoter; and

wherein one or both of the polypeptides A\* or B\* is fused to a carrier protein or a protein targeting signal.

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42. (Amended) The pair of parent plants of claim 40, wherein said carrier protein or protein targeting signal is GUS.

43. (Amended) A method of producing a male sterile plant by virtue of an active RNase enzyme the method comprising crossing;

F9 (i) a first parent plant containing a gene sequence encoding a polypeptide A\* comprising a methionine codon followed by amino acids 1 to 35 or 1 to 36 of mature Barnase with

(ii) a second parent plant containing a gene sequence encoding a polypeptide B\* comprising a methionine codon followed by amino acids 37 to 110 of mature Barnase,

wherein each of A\* and B\*, when expressed in a plant that expresses only one of A\* or B\*, is not an active RNase enzyme,

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but when expressed in a plant that expresses both A\* and B\*, A\* and B\* form an active RNase enzyme,

F9  
C007 wherein the one or both gene sequences encoding polypeptide A\* or B\* comprises a tapetum-specific promoter, an embryo-specific promoter, or a seed specific promoter; and

wherein one or both of the polypeptides A\* or B\* is fused to a carrier protein or a protein targeting signal.

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F10 45. (Amended) The method according to claim 43, wherein said carrier protein or protein targeting signal is GUS.

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Please add new claims 50-51 as follows:

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F11 50. (New) The pair of plants of claim 7, wherein the enzyme having RNase activity is Barnase or RNase A.

51. (New) The method of claim 21, wherein the enzyme having RNase activity is Barnase or RNase A.

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